CLAIMS

What is claimed is:

1. A hydrodynamic torque converter comprising:

a converter housing containing a pump wheel, a turbine wheel and a stator forming a hydrodynamic circuit;

at least one axial bearing supporting the stator; and

a support element for each said axial bearing, said support element having an essentially flat bearing side in contact with the axial bearing, a stator side, facing away from the axial bearing, in contact with the stator, and at least one flow passage for viscous medium connecting at least one flow conduit to said hydrodynamic circuit, said flow passage being defined by a flow bed facing the stator, at least one boundary wall extending from the flow bed to the stator side of the support element, and at least one stiffener connecting the flow bed and the at least one boundary wall.

2. A hydrodynamic torque converter as in claim 1 wherein said flow passage has an elevation extending from said flow bed to said stator side.

3. A hydrodynamic torque converter as in claim 2 wherein said stator comprises a freewheel comprising a pair of concentric rings, said support element axially positioning at least one of said rings, said at least one stiffener projecting from said flow bed toward said stator.

4. A hydrodynamic torque converter as in claim 2 wherein said stiffener extends in a circumferential direction.

5. A hydrodynamic torque converter as in claim 2 wherein said converter housing comprises a pump wheel hub and said axial bearing is a transmission-side bearing supported by said pump wheel hub.

6. A hydrodynamic torque converter as in claim 1 wherein said turbine wheel comprises a turbine wheel hub and said axial bearing is an engine-side bearing supported by said turbine wheel hub.

7. A hydrodynamic torque converter as in claim 1 wherein said at least one support element comprises an engine-side support element and a transmission-side support element, the flow passage of one of said support elements being sized to supply essentially all of the viscous medium flowing in the hydrodynamic circuit, the flow passage of the other of said support elements being sized to control the flow in the hydrodynamic circuit.

8. A hydrodynamic torque converter as in claim 7 wherein said flow passage of said transmission-side support element is larger than the flow passage of the engine-side support element.

9. A hydrodynamic torque converter as in claim 7 wherein the stiffener of the engine-side support element acts as throttle to constrict the flow passage of the engine-side support element.

10. A hydrodynamic torque converter as in claim 7 wherein said stator comprises a freewheel comprising a pair of concentric rings and a plurality of rolling elements installed radially between said rings, said rolling elements forming circumferentially therebetween a flow route connecting said flow passage of said transmission-side support element and said flow passage of said engine-side support element, said flow route constituting part of a residual leak connection.

11. A hydrodynamic torque converter as in claim 1 wherein each said flow passage extends essentially radially.

12. A hydrodynamic torque converter as in claim 1 wherein each said axial bearing comprises rolling elements having a diameter, each said flow passage having a circumferential dimension which corresponds to the diameter of a rolling element.

13. A hydrodynamic torque converter as in claim 1 wherein each said flow passage has a stiffener which is substantially radially aligned with an area of the respective bearing side which is in contact with the axial bearing.

14. A hydrodynamic torque converter as in claim 7 wherein said residual leak connection comprises a flow diversion in contact with the engine-side support element, said flow diversion returning viscous fluid from the transmission-side support element to the flow passage of the transmission-side support element.